Title: COMPUTER ASSISTED INTRAMEDULLARY ROD SURGERY SYSTEM

Abstract: A computer assisted surgery system is described for assisting a surgeon in aligning a drill with the interlocking holes of an implanted intramedullary (IM) rod used for fixation of long bone fractures. With the IM rod (130) inserted, a localizing device (120) measures the pose of a tracked adapter (129) attached to the rod’s exposed end. Approximate AP and lateral fluoroscopic x-ray images are acquired of the end of the rod with the interlocking holes. Image processing algorithms determine the actual position of the rod and calculate an adjustment to the pose of the tracked adapter (129) and IM rod (130). Using the adjusted pose information, the system displays, in three roughly orthogonal views, a representation of the drill trajectory relative to the images of the IM rod (130) and relative to a graphic representation of the IM rod (130).
European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BI, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

Published:
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : A61B 5/05
US CL. : 600/424
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
U.S. : 600/300, 407-472; 128/898, 916, 922, 923; 606/62, 64, 72, 73, 86, 87, 98, 102, 105, 130; 378/4, 20, 205

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database consulted during the international search (name of database and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>US 5,769,092 A (Williamson, Jr.) 23 June 1998 (23.06.1998), the entire document.</td>
<td>1-13</td>
</tr>
</tbody>
</table>

☐ Further documents are listed in the continuation of Box C.
☐ See patent family annex.

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Date of the actual completion of the international search: 17 October 2003 (17.10.2003)
Date of mailing of the international search report: 29 OCT 2003

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Form PCT/ISA/210 (second sheet) (July 1998)
Continuation of B. FIELDS SEARCHED Item 3:
EAST:
search items: computer assisted surgery, mri, x-ray, ct, localizing